



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/753,618	01/07/2004	John A. Mcneghini	5693P038	6318
48102 7590 08/15/2007 NETWORK APPLIANCE/BLAKELY 1279 OAKMEAD PARKWAY SUNNYVALE, CA 94085-4040			EXAMINER WON, MICHAEL YOUNG	
			ART UNIT 2155	PAPER NUMBER
			MAIL DATE 08/15/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/753,618

Applicant(s)

MENEHINI ET AL.

Examiner

Michael Y. Won

Art Unit

2155

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 January 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-46 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9 and 13-46 is/are rejected.
- 7) ☒ Claim(s) 10-12 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All. b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 1/9/06.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

1. This action is in response to the application filed January 7, 2004.
2. Claims 1-46 have been examined and are pending with this action.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1-9 and 13-46 are rejected under 35 U.S.C. 102(e) as being anticipated by Witkowski (US 2004/0030766).

INDEPENDENT:

As per **claim 1**, Witkowski teaches a method comprising:

operating a storage system that includes a communication port, the port having a mode of operation (see Fig.1 and page 3, [0038]: “and has a multiplicity of port types to allow it to connect to a variety of network types”); and

dynamically switching the mode of operation of the port between a target mode and an initiator mode (see page 9-page 10, [0076]-[0077]: “operate in initiator, target, or

in both modes of operation”) in response to user input from a user of the storage system (see page 11, [0086]: “logical interface for the user to manage and control the storage network switch”).

As per **claim 13**, Witkowski teaches a method of reconfiguring a unified storage system operable to provide a plurality of hosts with file-level access and block-level access to stored data, the storage system including a port, the method comprising:

dynamically switching a mode of operation of the port between a target mode and an initiator mode (see page 9-page 10, [0076]-[0077]: “operate in initiator, target, or in both modes of operation”); and

reconfiguring the storage system from a first network configuration to a second network configuration or vice versa, wherein in the first network configuration the port is configured in the target mode (see page 9-page 10, [0076]-[0077]: “operate in initiator, target, or in both modes of operation”) and the storage system is connected through the port via a switching fabric to a set of clients to provide the set of clients with block-level access to a set of mass storage devices (see page 1, [0004]: “moving block storage traffic over SANs... and storage target devices (the “clients”)”), and wherein in the second network configuration the port is configured in the initiator mode (see page 9-page 10, [0076]-[0077]: “operate in initiator, target, or in both modes of operation”).

As per **claim 20**, Witkowski teaches a method of dynamically switching a Fibre Channel port between a target mode of operation and an initiator mode of operation, the method comprising:

operating a storage system configured to provide a host with access to a set of mass storage devices, the storage system including the Fibre Channel port (see page 1, [0004]: "host computers/servers");

storing a variable within the storage system (see page 17, [0143]: "LUN and LBA mapping");

changing a state of the variable (see page 19, [0161]: "update protocol states") based on user input (see page 11, [0086]: "logical interface for the user to manage and control the storage network switch"); and

reconfiguring the Fibre Channel port to operate in either the target mode or the initiator mode (see page 9, [0077]: "FC controllers 718 are used to operate in both initiator and target modes of operation") based on the state of the variable (see page 7, [0060]: "port state of each port").

As per **claim 27**, Witkowski teaches a method of dynamically switching a Fibre Channel port between a target mode of operation and an initiator mode of operation, the method comprising:

initializing a storage system configured to provide a host with access to a set of mass storage devices (see page 10, [0081]: "may initialize the I/O devices to be in such a state as to allow the I/O devices to perform I/O operations"), the storage system including a Fibre Channel adapter (see Fig.7, #718a) and the Fibre Channel port (see Fig.7, #740);

Art Unit: 2155

storing within the storage system a variable (see page 17, [0143]: "LUN and LBA mapping") for use in determining whether the Fibre Channel port is to operate in the target mode or in the initiator mode (see page 9, [0076]: "storage access commands");

changing the state of the variable (see page 19, [0161]: "update protocol states") based on user input affecting a right to use a Fibre Channel Protocol (FCP) with the storage system (see page 11, [0086]: "logical interface for the user to manage and control the storage network switch");

reinitializing the storage system, including checking the state of the licensing status variable, and selecting one of a target driver and an initiator driver for the Fibre Channel port based on the state of the variable (see page 7, [0060]: "port state of each port"), the selected driver causing the Fibre Channel port to operate in a corresponding one of the target mode and the initiator mode (see page 9, [0077]: "FC controllers 718 are used to operate in both initiator and target modes of operation").

As per **claim 31**, Witkowski teaches a storage system comprising:

a processor (see Fig.7, #710);

a Fibre Channel port (see Fig.7, #740);

a Fibre Channel adapter to control the Fibre Channel port (see Fig.7, #718a);

a first memory (see Fig.7, #720), separate from the Fibre Channel adapter, to store a variable (see page 17, [0143]: "LUN and LBA mapping"), the variable being modifiable in response to user input (see page 11, [0086]: "logical interface for the user to manage and control the storage network switch"); and

a second memory (see Fig.7, #720) storing instructions which, when executed by the processor, cause the storage system to:

read the variable from the first memory (see page 17, [0143]: "LUN and LBA mapping"),

configure the Fibre Channel port to operate in either a target mode or an initiator mode (see page 9, [0077]: "FC controllers 718 are used to operate in both initiator and target modes of operation") based on a state of the variable (see page 7, [0060]: "port state of each port"), and

provide a host with access to a set of mass storage devices by using the Fibre Channel port (see page 9, [0076]: "initiates a storage access command like READ, WRITE, or REWIND").

As per **claim 37**, Witkowski teaches a storage system comprising:

a communication port to enable the storage system to communicate with an external device, the port having a mode of operation (see Fig.1 and page 3, [0038]: "and has a multiplicity of port types to allow it to connect to a variety of network types");

a processor (see Fig.7, #710); and

a memory (see Fig.7, #720) storing software which, when executed by the processor, causes the storage system to perform a process comprising:

providing a host with access to a set of mass storage devices by using the port (see page 9, [0076]: "initiates a storage access command like READ, WRITE, or REWIND");

storing a variable within the storage system (see page 17, [0143]: "LUN and LBA mapping");

changing a state of the variable (see page 19, [0161]: "update protocol states") based on user input (see page 11, [0086]: "logical interface for the user to manage and control the storage network switch"); and

reconfiguring the port to operate in either a target mode or an initiator mode (see page 9, [0077]: "FC controllers 718 are used to operate in both initiator and target modes of operation") based on the state of the variable (see page 7, [0060]: "port state of each port").

As per **claim 46**, Witkowski teaches a storage system comprising:

a communication port (see Fig.1 and page 3, [0038]: "and has a multiplicity of port types to allow it to connect to a variety of network types");

means for providing a host with access to a set of mass storage devices by using the communication port (see page 9, [0076]: "initiates a storage access command like READ, WRITE, or REWIND"); and

means for dynamically switching a mode of operation of the port between a target mode and an initiator mode (see page 9-page 10, [0076]-[0077]: "operate in initiator, target, or in both modes of operation").

DEPENDENT:

As per **claims 2 and 38**, which respectively depend on claims 1 and 31, Witkowski further teaches wherein the port is a Fibre Channel port (see page 3, [0038]).

As per **claims 3, 18, and 39**, which respectively depend on claims 1, 16 and 31, Witkowski further teaches wherein the port is an iSCSI port (see page 9, [0076]).

As per **claims 4 and 16**, which respectively depend on claims 1 and 13, Witkowski further teaches wherein operating the storage system comprises storing a variable within the storage system (see page 17, [0143]: "LUN and LBA mapping"); and dynamically switching the mode of operation of the port comprises:

changing a state of the variable (see page 19, [0161]: "update protocol states") based on user input (see page 11, [0086]: "logical interface for the user to manage and control the storage network switch"); and

reconfiguring the port to operate in either the target mode or the initiator mode (see page 9, [0077]: "FC controllers 718 are used to operate in both initiator and target modes of operation") based on the state of the variable (see page 7, [0060]: "port state of each port").

As per **claim 5**, which depends on claim 4, Witkowski further teaches wherein the state of the variable is based on whether a right to use a particular protocol is associated with the storage system (see page 19, [0161]).

As per **claim 6**, which depends on claim 5, Witkowski further teaches wherein the protocol is a Fibre Channel Protocol (FCP) (see page 9, [0076]).

As per **claim 7**, which depends on claim 1, Witkowski further teaches wherein dynamically switching the mode of operation of the port comprises: selecting one of a target driver and an initiator driver for the port based on a state of the variable (see page 14, [0108]).

As per **claim 8**, which depends on claim 1, Witkowski further teaches wherein the storage system is operable to provide a host with access to a set of mass storage devices by using the port (see page 1, [0004] and page 9, [0076]).

As per **claim 9**, which depends on claim 1, Witkowski further teaches wherein the storage system is operable to provide a plurality of hosts with file-level access (see page 4, [0042]) and block-level access to stored data (see page 9, [0076]).

As per **claim 14**, which depends on claim 13, Witkowski further teaches wherein in the second network configuration, the storage system is connected through the port to a SAN-based backup mass storage medium (see page 1, [0008]).

As per **claim 15**, which depends on claim 13, Witkowski further teaches wherein in the second network configuration the port is one of a plurality of ports used to connect the storage system to a set of mass storage devices (see Fig.7).

As per **claim 17**, which depends on claim 16, Witkowski further teaches wherein the port is a Fibre Channel port (see page 3, [0038]), and the variable is indicative of whether a right to use a Fibre Channel Protocol (FCP) is associated with the storage system (see page 19, [0161]).

As per **claim 19**, which depends on claim 13, Witkowski further teaches wherein dynamically switching the mode of operation of the port comprises: selecting one of a plurality of selectable drivers for the port (see page 14, [0108]) based on a state of the variable (see page 7, [0060]).

As per **claim 21**, which depends on claim 20, Witkowski further teaches wherein reconfiguring the Fibre Channel port to operate in either the target mode or the initiator

mode comprises: selecting one of a target driver and an initiator driver (see page 14, [0108]) for the Fibre Channel port based on the state of the variable (see claim 20 rejection above).

As per **claim 22**, which depends on claim 20, Witkowski further teaches wherein the variable is based on whether a right to use a Fibre Channel Protocol (FCP) is associated with the storage system (see page 19, [0161]).

As per **claim 23**, which depends on claim 22, Witkowski further teaches wherein changing the state of the variable comprises changing the state of the variable based on user input affecting the right to use the FCP with the storage system (see page 11, [0086]).

As per **claim 24**, which depends on claim 20, Witkowski further teaches wherein the storage system is configured to operate as a file server (see page 4, [0042]).

As per **claim 25**, which depends on claim 20, Witkowski further teaches wherein the storage system is configured to provide the host with block-level access to the set of mass storage devices (see page 9, [0076]).

As per **claim 26**, which depends on claim 20, Witkowski further teaches wherein the storage system is operable to provide file-level access and block-level access to stored data (see claim 24 and 25 rejections above).

As per **claim 28**, which depends on claim 27, Witkowski wherein the storage system is configured to operate as a file server (see page 4, [0042]).

As per **claim 29**, which depends on claim 27, Witkowski further teaches wherein the storage system is configured to provide the host with block-level access to the set of mass storage devices (see page 9, [0076]).

As per **claim 30**, which depends on claim 27, Witkowski further teaches wherein the storage system is operable to provide file-level access and block-level access to stored data (see claim 28 and 29 rejections above).

As per **claim 32**, which depends on claim 31, Witkowski further teaches wherein the variable is indicative of whether a right to use a Fibre Channel Protocol (FCP) is associated with the storage system (see page 19, [0161]).

As per **claim 33**, which depends on claim 31, Witkowski further teaches wherein the instructions which cause the storage system to configure the Fibre Channel port to operate in either the target mode or the initiator mode comprise instructions which cause the storage system to: select one of a target driver and an initiator driver for the Fibre Channel port based on the state of the variable (see claim 21 rejection above).

As per **claim 34**, which depends on claim 31, Witkowski further teaches wherein the storage system is configured to operate as a file server (see page 4, [0042]).

As per **claim 35**, which depends on claim 31, Witkowski further teaches wherein the storage system is configured to provide the host with block-level access to the set of mass storage devices (see page 9, [0076]).

As per **claim 36**, which depends on claim 31, Witkowski further teaches wherein the storage system is operable to provide a plurality of hosts with file-level access and block-level access to stored data (see claim 34 and 35 rejections above).

As per **claim 40**, which depends on claim 37, Witkowski further teaches wherein reconfiguring the port to operate in either the target mode or the initiator mode comprises: selecting one of a plurality of selectable drivers for the port (see page 14, [0108]) based on the state of the variable (see claim 37 rejection above).

As per **claim 41**, which depends on claim 37, Witkowski further teaches wherein the variable indicates whether a right to use a particular protocol is associated with the storage system (see page 19, [0161]).

As per **claim 42**, which depends on claim 41, Witkowski further teaches wherein changing the state of the variable comprises changing the state of the variable based on user input affecting the right to use the protocol with the storage system (see page 19, [0161]).

As per **claim 43**, which depends on claim 37, Witkowski further teaches wherein the storage system is configured to operate as a file server (see page 4, [0042]).

As per **claim 44**, which depends on claim 37, Witkowski further teaches wherein the storage system is configured to provide the host with block-level access to the set of mass storage devices (see page 9, [0076]).

As per **claim 45**, which depends on claim 37, Witkowski further teaches wherein the storage system is configurable to operate either as a file server or to provide the host with block-level access to the set of mass storage devices (see claim 43 and 44 rejections above).

Allowable Subject Matter

4. Claims 10-12 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: Prior art of record alone or in combination do not explicitly teach, disclose or suggest "further comprising reconfiguring the storage system from a first network configuration to a second network configuration or vice versa; wherein in the first network configuration, the port is configured in the target mode and the storage system is connected through the port via a switching fabric to a set of clients to provide the set of clients with block-level access to a set of mass storage devices; and wherein in the second network configuration, the port is configured in the initiator mode" as recite in claim 10.

Claims 11 and 12 are allowable at least for the same reasons because claims 11 and 12 depend on claim 10.

Conclusion

5. For the reasons above claims 1-9 and 13-46 have been rejected and claims 10-12 have been objected. Claims 1-46 are pending with this action.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Y. Won whose telephone number is 571-272-3993. The examiner can normally be reached on M-Th: 7AM-5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Saleh Najjar can be reached on 571-272-4006. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Michael Won/

Primary Examiner

August 7, 2007